Remarks:

Applicant has carefully studied the non-final Examiner's Action mailed 10/26/2007, having a shortened statutory period for response set to expire 01/26/2008, and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings and numbered paragraphs that correspond to the centered headings and paragraphing employed by the Office, to ensure full response on the merits to each finding of the Office.

Continued Examination Under 37 CFR 1.114

1. Applicant thanks the Office for entering Amendment AF under 37 CFR 1.114.

Elections/Restrictions

2. Applicant acknowledges the withdrawal of claims 12-17.

3. Applicant acknowledges that claims 1-5 and 34-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Burns. The cancellation of claim 2 in this Amendment C and the cancellation of claims 3-5 and 34-35 in Amendment AF has rendered moot this ground of rejection as it relates to claims 2-5 and 34-35. Applicant respectfully traverses this ground of rejection as it relates to claims 1and 36. Reconsideration and withdrawal of this ground of rejection is requested because Burns teaches the reflection of incoherent, diffuse infrared radiation (IR) from the interior walls of a building. Thus, no laser and no out-of-doors objects are used.

The Office contends that Burns teaches transmissions at multiple wavelengths and multiple spaced apart targets, and Applicant does not traverse that broad teaching of Burns. However, the Burns multiple wavelength transmission relies upon diffuse, non-coherent IR to ensure that the multiple targets will receive the information over different wavelengths. More particularly, Burns discloses that he employs a diffuse, omnidirectional source such as a light bulb or LED. Light bulbs and LEDs are non-coherent and cannot be focused to a diffraction limited beam. Therefore, the target area in the Burns system is over a million times the size of a laser beam target area. It would not have been obvious for Burns to substitute a laser source for his light bulb or LED because Burns requires a large target area as the primary guarantee that there will be at least one successful transmission. If a laser light source were used instead of the

LEDs, such use would reduce the target area to such a small size that the general purpose receivers employed by Burns would be rendered ineffective. The enclosure of Burns is always an indoor enclosure because the Burns invention relates to local area network (LAN) computer systems such as Bluetooth where a computer and its peripherals are positioned near one another inside a building. Such a system has no utility in long-distance communications where clouds and other such remote objects are used to reflect laser beams. More importantly, such a system teaches away from long-distance communications where clouds and other such remote objects are used to reflect laser beams.

Applicant employs a plurality of targets where each target is used for a different communications channel. Burns neither teaches nor suggests that each target be used for a different communications channel because none of the Burns targets are used for any communications channel.

Claim 1 is currently amended by changing "optical light source" to "laser" to make it clear that the invention does not include sources of incoherent light such as infrared light. Applicant, not Burns, discloses a laser light source. Changing the diffuse light source of Burns to a laser would render the Burns system inoperable so it is clearly unfair to Applicant to contend that Applicant's system is anticipated by Burns. The Burns system teaches away from lasers and teaches away from using objects in the external environment.

Regarding claim 36, Burns clearly includes no teachings or suggestions that his non-coherent light could be used to reflect from any external remote target whatsoever and therefore includes no teachings or suggestions whatsoever that his diffuse light could be reflected from atmospheric aerosols and atmospheric particles. Burns discloses that his system works with peripherals such as printers, keyboards, and mice, such disclosure inherently including speakers, video cameras, and other such peripherals located inside the same room or building as the source of incoherent light. The concept of inherency does not include a leap from an indoor system for bouncing diffuse, incoherent infrared radiation from walls, floors, and ceilings to an outdoor system for bouncing coherent laser beams from atmospheric aerosols, buildings and trees. The atmospheric aerosols that might be present in a room where the Burns invention is in operation are not used by the Burns system in any way.

Claim Rejections – 35 USC § 103

4. Applicant acknowledges the quotation of 35 U.S.C. § 103(a).

5. Claims 1-2, 6, 18, 19, 24 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Aoki. The cancellation of claim 2 renders moot the rejection of said claim. Reconsideration and withdrawal of this ground of rejection as it relates to claims 1, 6, 18, 19, 24 and 36 is requested because the Office's contention that it would have been obvious to use a laser in the Burns system instead of incoherent optical light as disclosed by Burns is countered by the above-mentioned fact that the Burns system requires a diffuse light source that can bounce off ceilings, floors, and walls so that the receiving instruments such as computer peripheral equipment can easily detect such signals. The use of coherent light in a LAN system is counterintuitive and would be impractical. Each item of computer peripheral equipment would need to be positioned in a precise location and in a precise orientation so that the laser light could be received. Even more importantly, even if it would have been obvious to use a laser instead of an infrared source, and such obviousness cannot be assumed, the hypothetical Burns laser system would still have to be indoors because neither Burns nor Aoki teaches anything about the use of atmospheric particles, trees, external buildings and the like to cause backscatter of laser light. The Office's contention that atmospheric particles in a room are inherently involved in Burns is respectfully traversed because such particles are ignored and not used in the Burns system and they would be continually ignored if Burns were modified by Aoki.

Regarding claims 6, 18, 19, and 24, Applicant respectfully traverses the Office's Official Notice that:

> "...the use of lasers in optical communication systems is well known in the art and Official Notice is given to that effect. One skilled in the art would have been motivated to employ a laser in the system of Burns in order to increase the distance capabilities of the apparatus. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use a laser in the system of Burns."

Applicant has not filed a claim that says: "An optical communication system using a laser." Both Burns and Aoki are evidence that optical communication systems using lasers to generate multiple wavelengths, to modulate the coherent light so generated so that it carries information, and to bounce such modulated, coherent light off of external objects such as trees, clouds, and buildings were absolutely unknown prior to Applicant's disclosure thereof.

Burns modified by Aoki is simply the Burns LAN system with an LED light source instead of an infrared light source. If the LED light source provides coherent light, then the new

Burns/Aoki system simply would not work for the reasons stated above, *i.e.*, the Burns system absolutely requires a diffuse, incoherent light. Modifying it to use a coherent light renders it completely inoperable for the reasons already stated. The conclusion that it would not have been obvious to substitute a coherent LED light source, or any coherent light source, for the diffuse light source of Burns is inescapable. Fairness is the hallmark of the patent system, and it would be manifestly unfair to make a rejection final on the grounds that substituting a coherent light source from Aoki into the incoherent light source-reliant system of Burns would have been obvious. A Burns LAN with a coherent light source would be nothing but a collection of computers and peripherals that could not communicate with one another.

Regarding claim 36, said claim depends from claim 1 and is allowable as a matter of law upon allowance of said claim 1, currently amended.

6. Claims 20-23 and 25-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns and Aoki in view of Wilkerson. Reconsideration and withdrawal of this ground of rejection is requested because the Office's contention that it would have been obvious to use the LIDAR beam of Wilkerson in the system of Burns as modified by Aoki cannot overcome the already-discussed problem of system inoperability that a coherent light beam would create in the Burns LAN system. Burns requires a diffuse light source and it cannot be said that an improvement would have been obvious if the improvement would destroy the efficacy of the invention. Whether it would have been obvious to substitute a conventional laser or a modified laser such as a LIDAR into a hypothetical Burns/Aoki system is the issue. As already pointed out, the introduction of a coherent light source into the Burns system would render the Burns system impractical and unworkable. The need for a diffuse light source to transmit signals to equipment enclosed in a room is now obvious in view of the Burns disclosure, and such need teaches away from the use of either a conventional laser or a LIDAR. Wilkerson does not disclose or suggest use of a LIDAR system in a closed room having a LAN system. A combination of Burns, Aoki, and Wilkerson therefore suggests the invention no more than either of said references standing alone.

Nor does Wilkerson teach the use of a LIDAR beam for communication purposes between a transmitter and a remote receiver. Instead, Wilkerson harnesses the well-known Doppler effect to determine wind speed by bouncing LIDAR beams from atmospheric particles. The LIDAR beam returns to its source as in all Doppler-effect devices. There is no data

communication from a transmitter to a remote receiver as disclosed and claimed by Applicant. Both Applicant and Wilkerson bounce LIDAR beams from atmospheric particles but Wilkerson detects wind speed and direction whereas Applicant provides a modulated LIDAR beam, thereby enabling long-distance communication. There are no data communication devices in the Wilkerson system, and absence of a data communication device does not suggest presence of a data communication device.

Regarding claims 20 and 25-27, the Office contends that Burns teaches each of the limitations relating to transmission and reception of light reflected off of remote targets. Applicant respectfully traverses that contention because, again, the teachings of Burns stop outside of the wall, floor, and ceiling-defined room that houses the peripheral equipment. Therefore, since Burns does not teach transmission and reception of light reflected off of remote, outdoor targets, Burns modified by the LIDAR of Wilkerson cannot possibly suggest the subject matter of claims 20 and 25-27. In fairness to Applicant, a cloud in the sky outside the room of Burns plays no role in the Burns system, even if the Burns system incorporates a conventional laser or a laser adapted into a LIDAR (which is a laser modified to emit coherent light in pulses and which is commonly used to measure wind direction by harnessing the Doppler effect as taught by Wilkerson).

Regarding claim 21, Applicant acknowledges that electrical signal conditioners are well-known, although they were not heretofore positioned downstream of a data transmitter and upstream of a laser light source in the novel data communication system invented and claimed by Applicant. Claim 21 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

Regarding claim 22, Applicant acknowledges that electrical signal conditioners are well-known, although they were not heretofore positioned downstream of an optical detector and upstream of a data receiver in the novel data communication system invented and claimed by Applicant. Claim 22 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

Regarding claim 23, Applicant acknowledges that optical bandpass filters are well-known. Claim 23 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

7. Claims 30-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Welch. Reconsideration and withdrawal of this ground of rejection is requested because said claims depend from independent claim 18 and are allowable as a matter of law upon allowance of said claim 18. The Office's contention that it would have been obvious to transmit the optical signals of Burns outside of an enclosed room because Welch teaches exactly that is respectfully traversed. Welch, like Burns, is silent on the issue of signals transmitted outside an enclosed room. Like Burns, Welch's system is entirely an indoor system with no outdoor utility and no teaching or suggestion that it could be used outdoors. Welch discloses that his system has utility in an enclosed room such as a hall or an auditorium. This is a far cry from teaching that clouds and other atmospheric phenomenon can be used in a laser or LIDAR system as reflective surfaces for coherent light so that backscatter optical signals are detected simultaneously by multiple telescope receivers positioned at a plurality of remote locations to create an entirely new type of data communication. That teaching is Applicant's and it certainly is not inherent in the room-bound systems of Burns and Welch.

8. Claims 32-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Wilkerson and Welch. Reconsideration and withdrawal of this ground of rejection is requested.

As above, the Office contends that the combination of Burns and Wilkerson differs from the claimed invention only because the combination does not teach that the optical signal is transmitted to a remote external target wherein the backscatter optical signal is detected simultaneously by multiple telescope receivers positioned at different locations. As already noted, the combination also fails to suggest the use of a LIDAR beam in the Burns LAN because of the impracticality of using a LIDAR in a LAN. Still, the addition of Welch to the combination of Burns and Wilkerson does not provide the missing use of an external beam that is reflected from atmospheric particles, broadly known as aerosols, so that an optical signal modulated by communication data is detected simultaneously by multiple remote telescope receivers positioned at different locations; that is Applicant's teaching and is nowhere to found in the indoor teachings of Burns and Welch nor is it taught or suggested in the wind-speed detecting system of Wilkerson. The Office cites Figure 8 of Welch as depicting such an outdoor system but said Figure 8 merely depicts equipment arrayed in an indoor hall or auditorium where the reflecting surfaces are walls, a floor and a ceiling. No prior art reference of record teaches or

suggests a laser or LIDAR for generating and transmitting an external beam that is reflected from atmospheric particles, broadly known as aerosols, or against trees, buildings, or other natural or man-made objects remote from the coherent light source so that a communications signal is detected simultaneously by multiple remote telescope receivers positioned at different locations. In fairness to Applicant, it must be acknowledged that the indoor system of Welch teaches away from the invention as claimed.

In Applicant's system, as claimed, the use of two different targets such as a tree and a building separates the two different communications channels from one another, and provides security from cross-talk between the two channels because different spatial targets are used, *i.e.*, the tree and the building occupy different spaces. These significant aspects of the invention are recited in the independent claims as currently amended. The Wilkerson wind speed-detecting system does not suggest communication channels at all, much less separate communication channels that suppress cross-talk.

Applicant is the first, anywhere in the world, to provide a communication device for transmitting signals to a receiver that includes at least one laser adapted to generate coherent light simultaneously at multiple wavelengths, at least one detector adapted to detect the coherent light at multiple wavelengths, and a plurality of external remote targets and target spatial regions fixed in line-of-sight relation to the laser and in line-of-sight relation to the detector where the external remote targets and target spatial regions are trees, buildings, clouds, atmospheric aerosols, and like objects that are out-of-doors relative to the laser. Applicant's first-in-the-world system further includes a modulating device connected in modulating relation to the laser and the modulating device is adapted to modulate each of the multiple wavelengths so that multiple messages are transmitted simultaneously. The novel communication device is adapted to aim the modulated light from the at least one laser at the plurality of external remote targets and target spatial regions to separate spatially different communication optical signals from one another. The at least one detector is adapted to demodulate light scattered by the target and includes an optical bandpass filter adapted to pass preselected wavelengths of light and reject wavelengths of light outside of the preselected wavelengths. Multiple messages are therefore simultaneously transmitted along multiple wavelengths and the multiple messages are individually detected by the at least one detector, all as recited in claim 1 as currently amended. No fair combination of Burns, Aoki, Wilkerson and Welch teaches or suggests such invention.

Response to Arguments

9. Applicant acknowledges the new grounds of rejection.

Conclusion

A Notice of Allowance is solicited. If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (813) 925-8505 is requested. Applicant thanks the Office for its continuing careful examination of this important patent application.

Very respectfully,

SMITH & HOPEN

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Dated: January 22, 2008

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CERTIFICATE OF FACSIMILE TRANSMISSION
(37 C.F.R. 1.8)

I HEREBY CERTIFY that this Amendment C, including Introductory Comments, Amendments to the Claims, and Remarks is being transmitted by facsimile to the United States Patent and Trademark Office, Central Fax, Attn: Agustin Bello, (571) 273-8300 on January 22, 2008.

Dated: January 22, 2008

Lauren Reeves

Lauren Reeves